$\mu$  i:Initial permeability (at 25°C)

B.Temp. : Bottom temperature

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Sample No.	Fe <sub>2</sub> O <sub>3</sub> (mol%)	MnO (mol%)	ZnO (mol%)	NiO (mol%)	Bs (mT)	Pcv (kW/m³)	B.Temp . (°C)	μi	Additives	Sintering temp. (°C)	Partial pressure of oxygen (%)
Comp. ex. 1	0.09	21.0	15.0	4.0	467	1410	09	824			
-	63.0	17.0	18.0	2.0	494	199	100	1059			
2	65.0	17.0	16.0	2.0	515	897	100	784	784 SiO <sub>2</sub> :100ppm		
က	0.79	18.5	14.0	0.5	505	988	100	702	702 CaCO <sub>3</sub> :1500ppm		
Comp. ex. 2	70.0	14.5	15.0	0.5	463	2675	100	389	389 Nb <sub>2</sub> O <sub>5</sub> :200ppm		
Comp. ex. 3	0.79	21.0	10.0	2.0	475	1225	80	742	742 *Weight ratio of SiO <sub>2</sub>		
4	65.0	19.0	14.0	2.0	519	964	80	928	928 content to CaCO <sub>3</sub>	1350	-
5	64.0	16.5	18.0	1.5	501	770	100	901	901 content = $0.07$		
Comp. ex. 4	65.0	13.5	21.0	0.5	474	1045	140	571			
9	0.79	18.5	14.0	0.5	505	886	100	702			
7	64.0	18.0	16.0	2.0	200	731	80	1074			
80	64.0	18.0	14.0	4.0	515	943	100	819			
Comp. ex. 5	64.0	16.0	14.0	6.0	512	1358	120	584			
Prior art ex.1	70.0	15.0	15.0	1	470	3207	140	220	SiO <sub>2</sub> :60ppm、		
Prior art ex.2	0.09	25.0	15.0	1	456	1431	20	1300	CaCO <sub>3</sub> : /00ppm, Nb <sub>2</sub> O <sub>5</sub> :250ppm,	1300	_
Prior art ex.3	70.0	10.0	20.0	I	468	2618	140	250	SiO <sub>2</sub> :100ppm,	1300	_
Prior art ex.4	70.0	10.0	20.0	ı	503	1846	100	490	CaCO <sub>3</sub> :700ppm、 Ta <sub>2</sub> O <sub>5</sub> :300ppm	1250	In nitrogen
⟨Remarks⟩ Bs	:Saturation magneti	ion mag	: Saturation magnetic flux density (at 100°C)	x densit	y (at	Ĭ	Pcv : Core	e loss a	Pcv : Core loss at bottom temperature (at 100 kHz, 200 mT)	(at 100 kH	z, 200 mT)

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	First additives	Iditives	Weight ratio of				
Sample No.	SiO <sub>2</sub> (ppm)	CaCO <sub>3</sub> (ppm)	SiO <sub>2</sub> content to CaCO <sub>3</sub> content	Bs (mT)	Pcv (kW/m³)	B.Temp.	iμ
6	100	1500	0.07	498	665	100	1182
9	120	1500	0.10	496	689	100	1089
Ξ	200	1500	0.13	505	703	100	1002
Comp. ex.6	300	1500	0.20	507	1241	100	601
12	120	1000	0.15	493	830	100	971
13	150	2000	0.08	495	746	100	1083
Comp. ex.7	150	3000	0.05	492	1046	100	874
<remarks> Sintering Bs</remarks>	marks> Sintering : at 1350°C, par Bs : Saturation ma	artial pressure of oxygen 1% agnetic flux density (at 100°	[ ပွ	Pcv: Core lo	ss at bottor	Pcv: Core loss at bottom temperature	ψ
				(at 100	(at 100 kHz, 200 mT)	(F	
B.Temp.	B.Temp. : Bottom temperature	erature		$\mu$ i : Initial p	$\mu$ i : Initial permeability (at 25°C)	(at 25°C)	
constituents	constituents : $Fe_2O_3$ : 63 mol%	<b>%</b>		MnO: 17.5 mol%	"lou	•	
	ZnO:17.5 mol/	%		NiO: 2 mol%			_
Additive	Additive: Nb <sub>2</sub> O <sub>5</sub> :200ppm						•

### FIG. 3

				,			
Sample No.	Additive	Additive amount (ppm)	Bs (mT)	Pcv (kW/m³)	B.Temp. (°C)	μi	Remarks
14		100	508	911	100	785	
15	Nb <sub>2</sub> O <sub>5</sub>	200	507	812	100	875	
16	110205	300	505	1109	100	729	
Comp. ex. 8		500	510	1253	100	782	
17		200	494	832	100	1000	
18	$ZrO_2$	500	505	795	100	942	
19		800	514	1025	100	751	Second additives
20	Ta <sub>2</sub> O <sub>5</sub>	200	494	1011	100	892	addicives
21	14205	500	508	810	100	980	
22	In <sub>2</sub> O <sub>5</sub>	200	496	1165	80	900	
23	111205	500	502	1037	100	888	
24	Ga₂O₅	200	493	1105	100	809	
25	Ga <sub>2</sub> O <sub>5</sub>	500	498	1067	100	866	
26	$V_2O_5$	200	510	1126	100	761	
27	V 2 0 5	500	513	1070	100	583	Fourth
28	GeO <sub>2</sub>	200	494	827	100	936	additives
29	4002	500	497	977	100	851	

#### <Remarks>

Sintering: at 1350°C, partial pressure of oxygen 1%

Bs : Saturation magnetic flux densit Pcv : Core loss at bottom temperature

(at 100°C)

(at 100 kHz, 200 mT)

B.Temp. : Bottom temperature

 $\mu$  i: Initial permeability (at 25°C)

:Fe<sub>2</sub>O<sub>3</sub> : 64.0 mol%

MnO: 17.5 mol%

ZnO: 16.5 mol%

constituents NiO: 2.0 mol%

SiO<sub>2</sub>: 100 ppm

CaCO<sub>3</sub>: 1500 ppm

\*Weight ratio of SiO<sub>2</sub> content to CaCO<sub>3</sub> content = 0.07

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Sample No.			_			
	SnO <sub>2</sub> (ppm)	TiO <sub>2</sub> (mdd)	Bs (mT)	Fcv (kW/m³)	B. Femp. (°C)	μi
30	1000	0	496	1049	100	821
31	5000	. 0	491	1103	100	069
32	0	1000	498	1188	100	695
33	0	3000	493	995	100	089
34	0	2000	485	930	100	089
<remarks></remarks>						
Sintering: at Bs: Sa	1350°C, par sturation mag	ring : at 1350°C, partial pressure of oxygen 1% Bs : Saturation magnetic flux density (at 100°C)	oxygen 1% itv (at 100°C)			
Pcv : Ç	ore loss at b	Pcv : Core loss at bottom temperature (at 100kHz, 200mT)	ture (at 100kH	lz, 200mT)		
B.Temp. : Bottom temperature	ottom temper	rature	מ	i: Initial per	$\mu$ i: Initial permeability (at 25°C)	25°C)
Other : Fe	Other: Fe <sub>2</sub> O <sub>3</sub> : 64.0 mol%	, %Jo	MnO: 17.5 mol%		ZnO: 16.5 mol%	%
collegina						
Ž	NiO: 2.0 mol%	,0	SiO <sub>2</sub> : 100 ppm		CaCO <sub>3</sub> : 1500 ppm	mdc
*Weight ratio of SiO	${\sf D}_2$ content to	$_2$ content to CaCO $_3$ content = 0.07	t = 0.07			

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Sample	Main	Additives	MoO3	<u> </u>	Sintering		Bs	Pcv	1 60	:-	Relative	Mean
No.	(wow)	(mdd)	(mdd)	(mdd)	temp. (°C)	of oxygen (%)	(mT)	(kW/m³)	(၁့)	į	(%)	ει αιιι 31 <b>2</b> ( ( μ μ)
35			ı	I			489	746	100	1390	96.0	10
36			001	i			496	813	100	847	97.1	1
37			200	I	1300	0.5	208	944	100	830	97.4	ı
38	Fe <sub>2</sub> O <sub>3</sub> : 64.0,	SiO <sub>2</sub> :100,	1	11			497	733	100	919	1	I
39	MnO: 17.5, ZnO: 16.5.	CaCO <sub>3</sub> :1500,	1	27			499	755	100	910	I	ı
40	NiO: 2.0	Nb <sub>2</sub> O <sub>5</sub> :200	ı	1	1330	8.0	203	827	100	879	6.96	13
41			ı	I	1350	1.0	206	840	100	855	97.7	16
42			I	I	1380	1.4	517	1022	100	693	98.1	20
43			_	-	1400	1.7	502	1189	100	593	97.4	25
<remarks></remarks>	: (s)				(				`			
ы В.Тетр.	B.Temp. : Bottom temperature	bs : Saturation magnetic flux density mp. : Bottom temperature	insity (at	(at 100°C)	Pcv μi	Pcv : Core loss at bottom temperature (at 100kHz, 200mT) $\mu$ i : Initial permeability (at 25°C)	at bott neabilit	om temp y (at 25°	erature (a C)	at 100kF	łz, 200mT	
	*Weig	*Weight ratio of $SiO_2$ content to $CaCO_3$ content = 0.07	2 content	to CaC(	) <sub>3</sub> content	= 0.07						

\*Weight ratio of  $SiO_2$  content to  $CaCO_3$  content = 0.07

 ${\rm Nb_2O_5:200ppm}$ 

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Sample No.	Fourth	Additive amount (ppm)	Relative density (%)	Bs (mT)	Pcv (kW/m³)	B.Temp. (°C)	μі	Sintering temp. (°C)	Partial pressure of oxygen (%)
35	None	1	0.96	489	746	100	1390		
44	In terms of P	10	8.96	497	753	100	919		
45	$(Ca_3(PO_4)_2)$	20	9.96	499	755	100	910		
36		100	97.1	496	813	100	847		
37	MoO <sub>3</sub>	200	97.4	208	944	100	830		
46		200	97.2	499	964	100	974		
47		100	96.2	499	788	100	1002		
48	$V_2O_5$	200	96.5	499	290	100	992		
49		200	96.2	496	888	100	952	1300	0.5
50	Cec	200	95.9	494	9//	100	962		
51	4602	200	95.4	494	780	100	973		
52	Bi-O-	200	95.8	494	795	100	980		
53	[203	200	96.5	502	981	06	886		
54		200	95.9	496	747	100	1086		
55	C. d.	200	97.0	497	798	100	961		
56	C2203	1000	97.3	207	794	100	1100		
57		2000	97.3	505	913	100	945		
<remarks></remarks>									
Bs	: Saturation magnetic flux density (at $100^{\circ}$ C)	gnetic flux c	Jensity (at 10	(၁့0(	Pcv : Core I	oss at botto	m temperat	Pcv: Core loss at bottom temperature (at 100kHz, 200mT)	z, 200mT)
B.Temp.	B.Temp. : Bottom temperature	rature		ıμ	$\mu$ i : Initial permeability (at 25°C)	neability (at	25°C)		
Other	Other : Fe <sub>2</sub> O <sub>3</sub> : 64.0 mol%	%lo	MnO: 17.5 mol%	%Jo	ZnO: 16.5 mol%	%loi			
constituents	NiO: 2.0 mol%	<b>\</b> B	$SiO_2$ : 100 ppm	٤	CaCO <sub>3</sub> : 1500 ppm	0 ppm			_

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					O.M.							
Sample No. Fe <sub>2</sub> O <sub>3</sub> MnO ZnO NiO	Fe <sub>2</sub> 0 <sub>3</sub>	MnO	ZnO	Nio	(fourth additive)	Sintering temp.	Partial pressure	Relative density	Bs	Pcv	B.Temp.	μi
	(mol%)	(‰lom)	(wlom)	(mol%)	(mdd)	(၃)	of oxygen (%)	(%)	(mT)	(kW/m³)	္တိ	
58	64.0	64.0 16.0 20.0	20.0	1	1	4050		96.2	467	736	100	1103
59	64.0	64.0 16.0	20.0	ı	100	0681	<u>-</u>	97.4	484	1065	110	866
09	0.99	66.0 17.0 17.0	17.0	1	-	1 200	n c	96.7	492	919	110	758
61	0.99	66.0 17.0 17.0	17.0	ı	100	000	C: O	97.4	511	1019	110	711
<pre><remarks> Bs : Saturation magnetic B.Temp. : Bottom temperature</remarks></pre>	: Satura : Bottor	ıtion ma n tempe	gnetic f	lux dens	<ul> <li>(s)</li> <li>Bs : Saturation magnetic flux density (at 100°C)</li> <li>mp. : Bottom temperature</li> </ul>	Pcv : Core loss at bottom temperature (at 100 kHz, 200 mT) $\mu$ i: Initial permeability (at 25°C)	ss at bottor meability (a	m tempera	ture (at	. 100 kHz,	200 mT)	
Ac	Additives:SiO <sub>2</sub> : 100 ppr *Weight ratio of SiO <sub>2</sub> c	: SiO <sub>2</sub> : 1 : ratio o	Iditives: $SiO_2$ : 100 ppr Ca(*Weight ratio of $SiO_2$ content	( ) -	$CaCO_3$ : 1500 ppm $Nb_2O_5$ : ent to $CaCO_3$ content = 0.07	$Nb_2O_5$ : 200 ppm = 0.07	Щd					

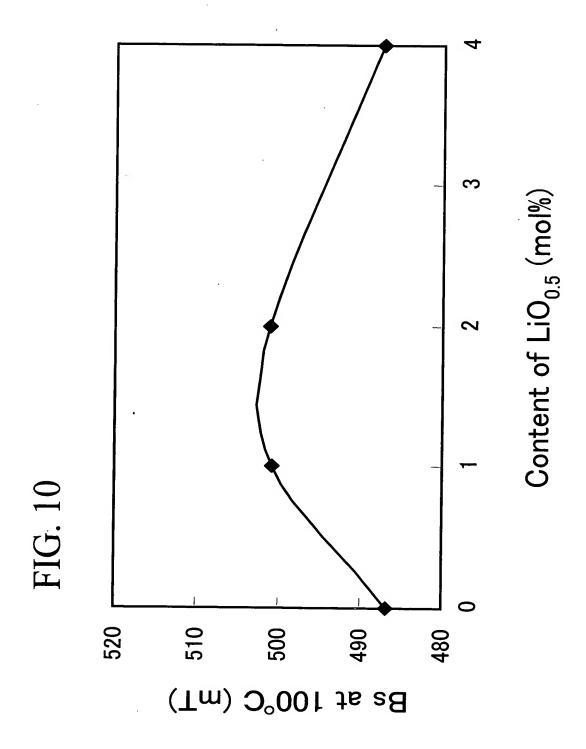
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						pressure				
Sample No.	Fe <sub>2</sub> O <sub>3</sub>	MnO	ZnO	OİN	Sintering	of	Bs	Pcv	B.Temp.	μi
	(‰low)	(mol%)	(wow)	(‰loш)	temp. (°C)	oxygen (%)	(mT)	(mT) (kW/m <sup>3</sup> )	(၁)	
62						2.0	496	687	100	1129
63						1.5	498	675	100	1132
64	63.0	17.5	17.5	2.0	1350	1.0	498	673	100	1209
65					-	0.5	495	166	100	1074
99						0.2	498	948	80	1073
<b>Kemarks</b>										
	Bs	Bs : Saturation magnetic flux density	magnetic flu	x density	Pcv	Pcv : Core loss at bottom temperature	s at bot	tom temp	erature	
		(at 100°C)				(at 100	(at 100kHz, 200mT)	0mT)		
<u> </u>	B.Temp.		nperature			$\mu$ i : Initial permeability (at 25°C)	rmeabili	ty (at 25°	(C)	•
	Additives	Additives : SIO $_2$ : 100 p	mdd	CaCO <sub>3</sub> : 1500 ppm	mdd (	Nb <sub>2</sub> O <sub>5</sub> : 200 ppm	0 ppm			
	*Weight ra	*Weight ratio of SiO, c	ontent to Ca	content to $CaCO$ , content = 0.07	. = 0.07					
			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	100000000000000000000000000000000000000						

FIG. 8

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Sample No	Fe <sub>2</sub> O <sub>3</sub>	MnO	ZnO	LiO <sub>0.5</sub>	Bs	(mT)			Pcv	Pcv (kW/m <sup>3</sup> )			B.Temp.	i,
	(mol%)	(mol%)	(mol%) (mol%) (mol%) (mol%)	(mol%)	RT	100°C	25°C	40°C	၁ <u>့</u> 09	၁ <u>,</u> 08	100°C	120°C	(၃)	
Comp. ex.9	64.0	20.0	16.0	ı	592	487	786	654	893	1070	1191	1252	40	1964
67	64.0	19.0	16.0	1.0	591	501	1733	1372	883	861	945	1053	80	-987
89	64.0	18.0	16.0	2.0	579	501	2182	1883	1506	1112	1006	1009	100	737
Comp. ex.10	64.0	16.0	16.0	4.0	545	487	2910	2694	2425	2162	2033	1866	120	481
<remarks></remarks>														
Sintering: at 1350°C, partial pressure of oxy	350°C, pa	irtial pre	ssure of	oxygen 1%	%									
Bs: Saturation magnetic flux density (at 100°C)	magnetic	o flux de	ensity (at	100°C)										
RT: Room temperature	perature													
Pcv: Core loss (at 100 kHz, 200 mT)	(at 100	kHz, 20(	) mT)											
B.Temp.: Bottom temperature	m tempe	rature												
$\mu$ i: Initial permeability (at 25°C)	neability	(at 25°C	$\circ$											
Additives : SiO <sub>2</sub> :100ppm CaCO <sub>3</sub> :1500ppn	:SiO <sub>2</sub> :10	00ppm	CaCO <sub>3</sub> :1	500ppn	$Nb_2$	Nb <sub>2</sub> O <sub>5</sub> :200ppm	Ε							
*Weight ratio of $SiO_2$ content to $CaCO_3$ content = 0.07	f SiO <sub>2</sub> co	ontent t	o CaCO3	content	= 0.07									



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			LiO <sub>0.5</sub> (mol%)	Bs (mT)	Pcv (kW/m³)	B.Ten (°C)	μi	Additives	Sintering temp.	Partial pressure of oxygen (%)
	_	15.0	2.5	457	1538		792		Ÿ	
	_	18.0	2.0	487	678	80	1147	1147 SiO <sub>2</sub> :100ppm		
18.0	_	16.0	2.0	201	1006	100	737	737 CaCO <sub>3</sub> :1500ppm		
18.5	<del>-</del>	14.0	0.5	207	1052	100	713	713 Nb <sub>2</sub> O <sub>5</sub> :200ppm		
14.5	=	15.0	0.5	466	3111	100	370		1350	-
21.0	=	11.0	1.0	479	1355	80	559	559 *Weight ratio of SiO <sub>2</sub>		
19.0 14.0	14	0.	2.0	515	1108	100	789	789 content to CaCO <sub>3</sub> content =		
17.0 18.0	18	0	0.1	495	842	100	813	70.0	-	
13.5 21.0	21	0.	0.5	475	1090	140	521			
15.0 15.0	15.	0	I	470	3207	140	220	SiO <sub>2</sub> :60ppm, CaCO <sub>3</sub> :700ppm,		
25.0 15.0	15.	0	1	456	1431	20	1300	1300 Nb <sub>2</sub> O <sub>5</sub> :250ppm, Ta <sub>2</sub> O5:50ppm	300	_
10.0 20.0	20.	0	ı	468	2618	140	250	SiO <sub>2</sub> :100ppm,	1300	1
10.0 20.0	20.	0	-	503	1846	100	490	СаС $U_3$ ://uppm, $Ta_2O_5$ :300ppm	1250	In nitrogen
Bs: Saturation magnetic flux density	lux de	ens		(at 100°C)	Pcv:	Core los	s at bo	Pcv: Core loss at bottom temperature (at 100 kHz, 200 mT)	200 mT)	-
alliperature	מנים	1			μ.	Iriidal per	шеаріі	μι. Initial permeability (at 20 C)		

	First ac	First additives	Weight ratio of	ſ	C		
Sample No.	SiO <sub>2</sub> (ppm)	CaCO <sub>3</sub> (ppm)	SiO <sub>2</sub> content to CaCO <sub>3</sub> content	Bs (mT)	(kW/m³)	B.Temp.	μi
73	100	1500	0.07	501	861	80	286
74	200	1500	0.13	207	934	80	887
75	150	2000	0.08	498	996	80	914
<pre><remarks> Sintering: at 1350°C, partial p Bs: Saturation magnetic flux d B.Temp.: Bottom temperature Main constituents : Fe<sub>2</sub>( ZnC</remarks></pre>	arks> ing: at 1350°C, partial pressure of o turation magnetic flux density (at 10p.: Bottom temperature  Main constituents : Fe <sub>2</sub> O <sub>3</sub> : 64 mol%  ZnO:16 mol%	tial pressure o flux density (at ature :Fe <sub>2</sub> O <sub>3</sub> : 64 mo ZnO:16 mol%	1350°C, partial pressure of oxygen 1% Pcv: Core loss at bottom temperature n magnetic flux density (at $100^{\circ}$ C) (at $100$ kHz, $200$ mT) tom temperature $\mu$ : Initial permeability (at $25^{\circ}$ C) onstituents : Fe <sub>2</sub> O <sub>3</sub> : 64 mol% MnO : 19 mol% ZnO:16 mol% LiO <sub>0.5</sub> : 1 mol%	Pcv: Core loss (at 100 kHz, 2C μ i: Initial perπ MnO : 19 mol% LiO <sub>0.5</sub> : 1 mol%	Pcv: Core loss at bot (at 100 kHz, 200 mT) μi: Initial permeabilit MnO : 19 mol% LiO <sub>0.5</sub> : 1 mol%	Sev: Core loss at bottom tempe (at 100 kHz, 200 mT) μ i: Initial permeability (at 25°C) MnO : 19 mol% LiO <sub>0.5</sub> : 1 mol%	perature C)
Additive	Additive: $Nb_2O_5:200ppm$	Oppm					

\*Weight ratio of  $SiO_2$  content to  $CaCO_3$  content = 0.07

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Sample No	Additive	Additive amount	Bs	Pcv	lm	:"	0 m 0 m
	_	(mdd)	(mT)	$(kW/m^3)$	(၁့)	ו אל י	remarks
76	Nb <sub>2</sub> O <sub>5</sub>	200	501	861	08	987	
77	$ZrO_2$		499	850	80	1041	
78	$Ta_2O_5$	טטצ	200	865	80	1077	Second additives
79	$In_2O_5$	000	495	1117	80	1008	
80	$Ga_2O_5$		492	1092	08	985	
81	$SnO_2$	1000	489	1099	80	927	. <u> </u>
82	TiO <sub>2</sub>	3000	485	1048	80	908	I nird additives
83	${\rm GeO}_2$	200	492	988	80	997	.: -
84	V <sub>2</sub> O <sub>5</sub>	200	510	1065	80	712	Fourth additives
<remarks></remarks>							
tering: at Saturatio	Sintering: at 1350°C, partial p Bs: Saturation magnetic flux d	Sintering: at 1350°C, partial pressure of oxygen 1% Bs: Saturation magnetic flux density (at 100°C)	gen 1% °C)	Pcv: Cor (at 100 p	Pcv: Core loss at bot (at 100 kHz, 200 mT)	bottom mT)	Pcv: Core loss at bottom temperature (at 100 kHz, 200 mT)
emp.: Bot	B.Temp.: Bottom temperature	erature		μi: Initi	$\mu$ i: Initial permeability (at $25^{\circ}$ C)	ability (a	t 25°C)
Other cor	Other constituents: Fe <sub>2</sub> O <sub>3</sub>	: Fe <sub>2</sub> O <sub>3</sub> : 64 mol%	MnO:19 mol%		Zn0:16 mol%	%lor	LiO <sub>0.5</sub> : 1 mol%
		SiO <sub>2</sub> : 100 ppm	CaCO <sub>3</sub> : 1500 ppm		Nb <sub>2</sub> O <sub>5</sub> :200ppm	Oppm	

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Sample No.	Fourth additive	Additive amount (ppm)	Relative density (%)	Mean grain size (μm)	Bs (mT)	Pcv (kW/m³)	B.Temp.	μi	Sintering temp.	Partial pressure of oxygen (%)
85	None		96.2	10	482	777	80	1418		
86	In terms of P $(Ca_3(PO_4)_2)$	20	8.96	16	494	790	80	1027		
87	MoO <sub>3</sub>	200	97.4	14	504	987	80	945		
88	GeO <sub>2</sub>	200	96.3	11	487	798	80	1065	1300	0.5
89	$Bi_2O_3$	200	96.7	17	495	1011	80	1054		
06	$Sb_2O_3$	1000	97.2	12	200	828	80	1195		•
91	$V_2O_5$	200	96.5	15	492	923	80	1001		
84	$V_2O_5$	200	1	1	510	1065	80	712	1350	-
<remarks></remarks>										
Bs: Saturation	Bs: Saturation magnetic flux density (at 100°C)	100°C)		Pcv: Core loss at bottom temperature (at 100 kHz, 200 mT)	ss at bottc	om temper	ature (at	100 kHz,	200 mT)	
B.Temp.: Bott	B.Temp.: Bottom temperature			$\mu$ i: Initial permeability (at 25°C)	rmeability	(at 25°C)				
Other constil	Other constil : $Fe_2O_3$ : 64 mol%	MnO: 19 mol%	"lou	ZnO:16 mol%		LiO <sub>0.5</sub> : 1 mol%	%Jou			
	SiO <sub>2</sub> : 100 ppm	CaCO <sub>3</sub> : 1500 ppm	mdd 00		Nb <sub>2</sub> O <sub>5</sub> :200ppm	mdd				
*Weight ratio	*Weight ratio of SiO <sub>2</sub> content to CaCO <sub>3</sub> cont	content = 0.07	0.07				•			

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Fe <sub>2</sub> O <sub>3</sub> (mol%)	MnO (mol%)	ZnO (mol%)	NiO (%lom)	LiO <sub>0.5</sub> (mol%)	Bs (mT)	Pcv (kW/m³)	B.Temp. (°C)	μi	Additives	Sintering temp.	Partial pressure of oxygen (%)
	22.0	15.0	0.1	2.0	462	1433	80	831			
63.0	17.5	18.0	0.1	0.5	494	714	100	1155	1155 SiO <sub>2</sub> :100ppm		
67.0	19.5	12.5	0.5	0.5	207	1167	80	803	803 CaCO <sub>3</sub> :1500ppm		
70.0	14.5	14.5	0.5	0.5	475	2971	100	350	350 Nb <sub>2</sub> O <sub>5</sub> :200ppm		
67.0	21.0	10.0	1.0	1.0	479	1303	100	675	675 *Weight ratio of SiO <sub>2</sub>		
65.0	19.0	14.0	1.0	1.0	510	951	100	890	890 content to CaCO <sub>3</sub> content =		
64.0	16.5	18.0	0.5	1.0	504	901	120	732	0.07	9	•
64.5	13.5	21.0	0.5	0.5	470	1125	140	489		0051	_
67.0	19.5	12.5	0.5	0.5	202	1167	80	803			
64.0	17.8	14.0	4.0	0.2	512	976	100	862			
64.0	16.0	13.5	0.9	0.5	504	1443	120	604			
67.0	19.5	12.5	0.5	0.5	507	1167	80	803			
64.0	17.5	16.0	0.5	2.0	504	1026	100	799			
64.0	17.5	14.0	0.5	4.0	481	1616	140	520			
70.0	15.0	15.0	i	1	470	3207	140	220	SiO <sub>2</sub> :60ppm, CaCO <sub>3</sub> :700ppm,		
0.09	25.0	15.0	ı	1	456	1431	20	1300		1300	_
70.0	10.0	20.0	ī	•	468	2618	140	250	SiO <sub>2</sub> :100ppm,	1300	-
70.0	10.0	20.0	1	ı	503	1846	100	490	Ta <sub>2</sub> O <sub>5</sub> :300ppm	1250	In nitrogen
54.0	25.0	11.0	10.0	ļ	i	1	240	_	-		In nitrogen
54.0	25.0	11.0	ı	10 (Li <sub>2</sub> O)	ı	ı	250	ı		1320	(2% of oxygen)
nagn	Bs: Saturation magnetic flux density (at 100°C)	ensity (at 1	(00°C)	Pcv	: Core lo	ss at bott	om temper	ature	Pcv : Core loss at bottom temperature (at 100 kHz, 200 mT)		
n tei	B.Temp. : Bottom temperature			μi.	Initial p	ermeabilit	$\mu$ i : Initial permeability (at 25°C)				

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Į	First additives	ditives	Weight ratio of		C		
	SiO <sub>2</sub> (ppm)	CaCO <sub>3</sub> (ppm)	SiO <sub>2</sub> content to CaCO <sub>3</sub> content	Bs (mT)	Fcv (kW/m³)	B.Temp. (°C)	μ
	100	1500	0.07	510	951	100	890
	200	1500	0.13	512	1033	100	804
	150	2000	80.0	510	986	100	811
t 1( Sati	Sintering :at 1350°C, partial pressur Bs : Saturation magnetic flux B.Temp. : Bottom temperature	Sintering :at 1350°C, partial pressure of oxygen 1% Bs : Saturation magnetic flux density (at 100°C) B.Temp. : Bottom temperature	(Ç)	Scv. Core los (at 100 k $\mu$ ):	Pcv: Core loss at bottom temperature (at 100 kHz, 200 mT) $\mu$ i : Initial permeability (at 25	loss at bottom temperature 00 kHz, 200 mT) ui: Initial permeability (at 25°C)	(Ç
ai. Gi	Main constituents :Fe <sub>2</sub> O <sub>3</sub>	:Fe <sub>2</sub> O <sub>3</sub> : 65 mol% ZnO:14 mol%	MnO : 19 mol% NiO 1 mol% 1	LiO <sub>0.5</sub> : 1 mol%			·
	Additive :	Additive: $Nb_2O_5$ :200ppm				•	

\*Weight ratio of  $SiO_2$  content to  $CaCO_3$  content = 0.07

Remarks			Second additives			77 F T T T	i nira additives	- : :::[r]r   - : : - : - : - : - : - : - : - : - :	Fourth additives		perature		(at 25°C)				
μi	890	1017	949	910	845	844	789	952	703		ottom tem	JmT)	meability	%lou		mdd	
B.Temp. (°C)	100	100	100	100	100	100	100	100	100		Pcv: Core loss at bottom temperature	(at 100kHz, 200mT)	$\mu$ i : Initial permeability (at 25°C)	ZnO:14 mol%		${\rm Nb_2O_5:200ppm}$	
Pcv (kW/m³)	951	901	696	1117	1211	1089	1045	939	1201		Pcv: Core	(at 1	$\mu$ i	%		mdd	
Bs (mT)	510	502	508	202	200	499	494	499	513		xygen 1%	y (at 100°C)		MnO:19 mol%	LiO <sub>0.5</sub> : 1 mol%	CaCO <sub>3</sub> : 1500 ppm	
Additive amount (ppm)	200		צטט	000		1000	3000	200	200		artial pressure of oxygen 1%	nagnetic flux density (at 100°C)	perature	: $Fe_2O_3$ : 65 mol%	NiO: 1 mol%	$SiO_2$ : 100 ppm	
Additive	$Nb_2O_5$	$2rO_2$	$Ta_2O_5$	$In_2O_5$	$Ga_2O_5$	SnO <sub>2</sub>	TiO <sub>2</sub>	GeO <sub>2</sub>	$V_2O_5$		Sintering : at 1350°C, par	Bs: Saturation ma	B.Temp. : Bottom temperature	Other constituents:			
Sample No.	101	102	103	104	105	106	107	108	109	<remarks></remarks>	Sintering	Bs	B.Temp.	Other			

\*Weight ratio of  $SiO_2$  content to  $CaCO_3$  content = 0.07

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of					_					(L		
Partial pressure of oxygen (%)				0.5				-		Pcv : Core loss at bottom temperature (at 100 kHz, 200 mT)		
Sintering temp. (°C)				1300				1350		e (at 100 k		
iμ	1343	970	698	1023	1039	1086	1052	703		emperatur	(C)	
B.Temp. (°C)	100	100	100	100	06	100	100	100		bottom te	ollity (at 2)	mod
Pcv (kW/m³)	868	912	1086	927	1137	978	1050	1201		re loss at	H: Initial permeability (at 25°C) ZnO:14 mol%	Nb.O200ppm
Bs (mT)	488	501	510	494	501	208	496	513		Pcv : Co	$\mu$ i: Initial pern ZnO:14 mol%	
Mean grain size (μm)	01	15	15	12	17	13	14	I		(0,0	MnO:19 mol%	LiO <sub>0.5</sub> : 1 mol% CaCO.: 1500 ppm
Relative density (%)	95.5	96.8	97.3	92.6	96.1	97.3	96.0	I		nsity (at 10		wac
Additive amount (ppm)	I	20	200	200	200	1000	200	200		netic flux de	ature : $Fe_2O_3:65$	NiO: 1 mol% SiO <sub>2</sub> : 100 ppm
Fourth additive	None	In terms of P (Ca <sub>3</sub> (PO <sub>4</sub> ) <sub>2</sub> )	MoO <sub>3</sub>	GeO <sub>2</sub>	Bi <sub>2</sub> O <sub>3</sub>	Sb <sub>2</sub> O <sub>3</sub>	V <sub>2</sub> O <sub>5</sub>	$V_2O_5$		Bs : Saturation magnetic flux density (at 100°C)	<ul> <li>b. I emp.: Bottom temperature</li> <li>Other constituents: Fe<sub>2</sub>O<sub>3</sub></li> </ul>	
Sample No.	110	111	112	113	114	115	. 116	109	<remarks></remarks>	B	b. lemp.	